

## **REMARKS**

The interview with Examiner Ramana on 10 December 2008 is acknowledged with appreciation. The examiner's interview summary is accurate as to what transpired at the interview. In response to the examiner's comments, amendments to the claims are made herein. Support for the claim amendments can be found on page 8, second paragraph which states, "As such, the first polymer layer 32 (i.e., the crosslinked polymer layer) of the composite 30 of this exemplary embodiment may be fabricated by exposing the first polymer layer 32 to gamma radiation. Such exposure may be in the exemplary range of 10-150 KGy." Applicants submit that it was well known in the art at the time of filing that irradiating UHMWPE with this level of irradiation results in a "uniform" cross-linking throughout. The reference Ding, Z. Y., et al., *J. Polymer Sci., Polymer Chem.*, 29:1035-38 (1990) states that the *gel content* and *swelling measurements* are generally used to characterize crosslink distributions in polymers, as referenced by U.S. Patent No. 6,228,900, (incorporated by reference) on line 23-27. As shown in Figure 3 and 5 of U.S. Patent No. 6,228,900, the gel content of the UHMWPE is uniform throughout, except for the oxidized surface which is typically removed by machining (6,228,900; column 2, line 23-27). Furthermore, the level of exposure described in U.S. Patent No. 6,228,900 is similar to that described within the specification. Specifically, Tables 3 and 5 of 6,228,900 show 3.3 Mrad which is equivalent to 33 KGy. Similarly, U.S. Patent No. 5,879,400, which was also incorporated by reference, describes that UHMWPE subjected to irradiation results in uniform swell ratios (Table 6, column 12). Furthermore, irradiation levels in U.S. Patent No. 5,879,400 are also similar to that range described within the specification. Specifically, U.S. Patent No. 5,879,400 describes using 20 Mrad (column 8, line 47) which would be equivalent to 200 KGy.

Accordingly, from these references, incorporated by reference within the disclosure, one of ordinary skill in the art would appreciate that utilizing 10-150 KGy results in UHMWPE with "uniform" cross-linking throughout.

## §103 REJECTIONS – DEVANATHAN/McKELLOP

Claims 49, 50, 52, 125-126, 128 and 129 were rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,645,594 to Devanathan et al. (hereinafter “Devanathan”) in view of U.S. Patent No. 6,165,220 to McKellop et al (hereinafter “McKellop”). Reconsideration of this application is respectfully requested.

Claim 49 and 125 have been amended to include the limitation “a radiation crosslinked layer of polyethylene having *uniform* crosslinking throughout” and “the first layer of polyethylene is radiation crosslinked to a *uniform* first degree” As discussed in the interview, the cross-linking as taught by McKellop would necessarily result in a surface gradient of crosslinking, wherein the density of crosslinks diminish to zero at some depth where the electron beams no longer penetrates (McKellop; column 9, line 19-25). Accordingly, the combination of Devanathan and McKellop fail to teach each element of either amended claim 49 or 125. That is, McKellop does not teach a layer having uniform crosslinking throughout. Dependent claims 50, 52, 126, 128, and 129 include each limitation of either independent claim 49 or 125; accordingly, they are not obvious in light of Devanathan in view of McKellop for at least the reasons discussed above.


## CONCLUSION

In view of the foregoing, it is submitted that this application is in a condition for allowance. Action to that end is hereby requested.

It is respectfully requested that, if necessary to effect a timely response, this paper be considered as a Petition for an Extension of Time sufficient to effect a timely response and shortages in other fees be charged, or any overpayment in fees be credited, to the Account of Barnes & Thornburg, Deposit Account No. 10-0435 with reference to file 265280-68002.

Respectfully submitted,

BARNES & THORNBURG LLP

  
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Kyle W. Kimble  
Agent Reg. No. 63,661

January 20, 2009  
Indianapolis, IN  
(317) 231-7701  
kyle.kimble@btlaw.com